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Visible Minority Neighbourhood Enclaves and Labour Market Outcomes of Immigrants

by Feng Hou and Garnett Picot

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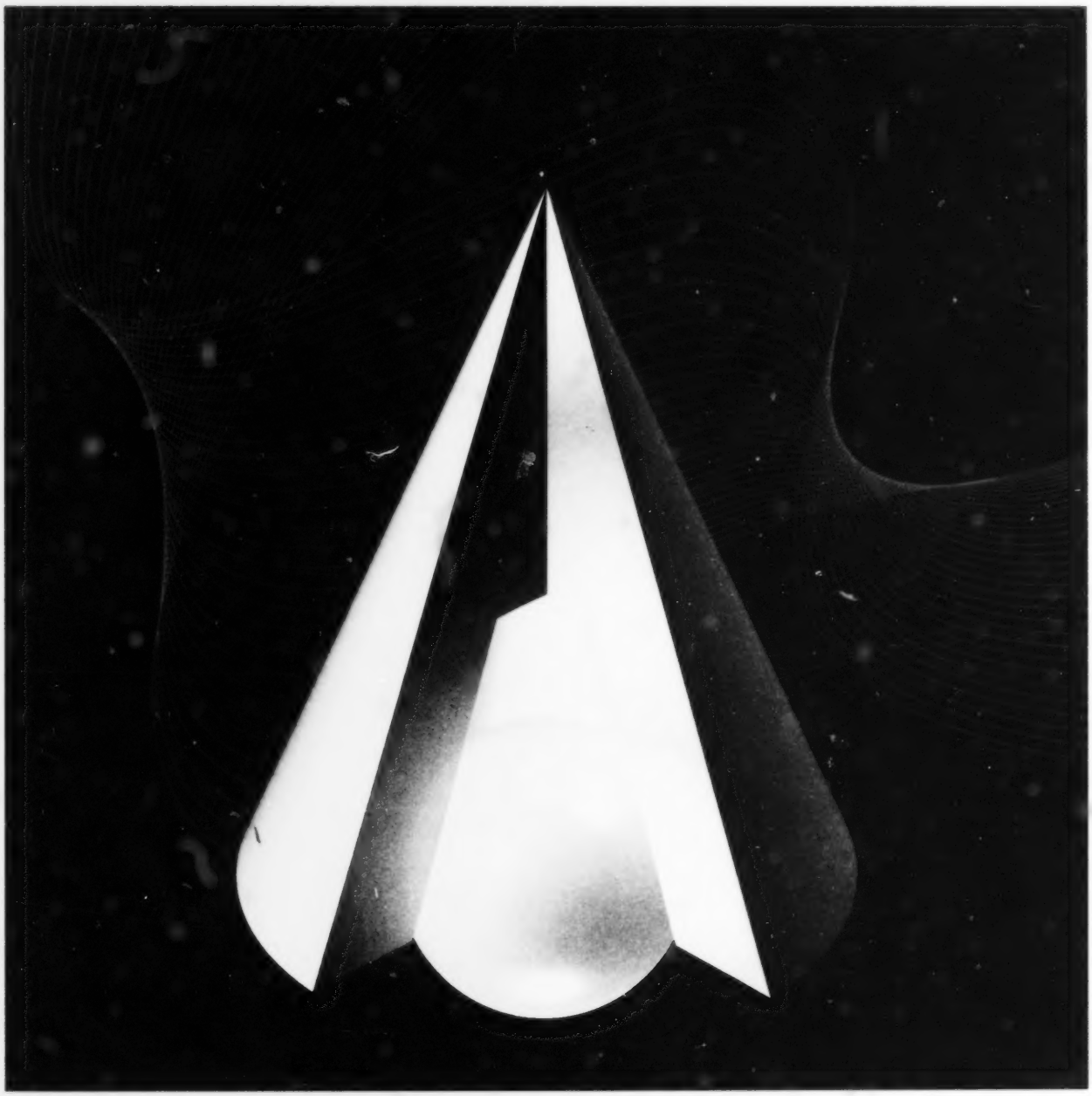

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ABSTRACT

Using Census data from 1981, 1986, 1991 and 1996, this study examined the association between living in a visible minority enclave and immigrants' labour market outcomes in Canada's three largest cities. The results showed that the number of such enclaves, defined as census tracts with at least 30% of the population from a single visible minority group (Chinese, South Asian or Black) increased from six in 1981 to 142 in 1996, mostly in Toronto and Vancouver. The association between exposure to own-group neighbours and employment was at times negative, but generally not significant. Exposure to own-group neighbours and working in a segregated occupation was positively, but also often not significantly, associated. Little association existed between exposure and employment earnings. However, there were some important group differences. The associations between exposure to own-group neighbours and labour market outcomes were usually very weak among Chinese immigrants, but often negative and strong among Black immigrants.

Keywords: ethnic enclaves, visible minorities, immigrants' economic performance.

1. Introduction

Since the 1970s, the major source countries for immigrants to Canada have steadily shifted from Europe to Asia, Africa, the Caribbean and South America. The majority of recent immigrants are from visible minority populations: Blacks, Chinese, South Asians, and other smaller groups. Most settled in Canada's three largest metropolitan areas. As a consequence, throughout the 1980s and 1990s, Toronto, Montreal, and Vancouver experienced large changes in the racial composition of their populations. Between 1981 and 1996, visible minorities as a share of the total population increased from 13.6% to 31.6% in Toronto, from 5.2% to 12.2% in Montreal, and from 13.9% to 31.1% in Vancouver[1]. In 1996, Toronto alone accounted for 42% of the nation's visible minority population; Montreal and Vancouver combined, accounted for another 30%.

Increases in visible minority populations through immigration profoundly affect the racial/ethnic make-up of urban neighbourhoods. The existence and expansion of ethnic enclaves—neighbourhoods with a substantial presence of minority populations—involves not just changes in ethnic composition, but it also creates a "social and symbolic centrality" of a minority group for its members as well as for the dominant society (Buzzelli 2000). The emergence of ethnic enclaves often transforms the physical and social characteristics of neighbourhoods, challenges the "way of life" established among long-term residents, and may generate tensions within local space (Ray et al. 1997). Social and economic interaction, both within a minority group and between this group and the rest of society, can be influenced by the existence of ethnic enclaves, and affect residents' lives on a daily basis.

Although ethnic enclaves are "neither a new phenomenon nor one occurring exclusively with any particular group" (Taeuber and Taeuber 1965), they are on the increase among visible minority populations as a result of immigration patterns of the past twenty years. Visible minority immigrants arriving during the 1980s and 1990s face different socio-economic environments than earlier immigrants did. Socially, Canada's multiculturalism policies encourage minority communities to preserve and enhance their cultural heritages. Economically, immigrant assimilation outcomes have deteriorated, affecting members of minority communities during the

[1] Calculated from the 1981, 1986, 1991, and 1996 Census 20% micro-data files. Visible minorities are defined by the Employment Equity Act as "persons, other than Aboriginal peoples, who are non-Caucasian in race or non-white in color". The regulations that accompany the Act identify the following visible minority groups: Chinese, South Asians (e.g., East Indian, Pakistani, Punjabi, Sri Lankan), Blacks (e.g., African, Haitian, Jamaican, Somali), Arab/West Asians (e.g., Armenian, Egyptian, Iranian, Lebanese, Moroccan), Filipinos, Southeast Asians (e.g., Cambodian, Indonesian, Laotian, Vietnamese), Latin Americans, Japanese, Koreans, and others (Kelly 1995). Prior to the 1996 Census, the visible minority status was derived from responses to questions on ethnic origin, mother tongue, place of birth, and religion. In the 1996 Census, the visible minority status was based on respondents' self-identification. If using the 1991 approach, the derived counts for 1996 would be 6% higher than the counts from the direct method for total visible minority population in Canada, 3.6% higher for Blacks, 1.6% for Chinese, 2.9% for South Asians, 61.9% higher for Arab/West Asians, and 3.4% lower for Filipinos. Thus the 1996 counts for most groups are comparable with those derived from the earlier approach. The large discrepancy for Arab/West Asians is primarily due to the exclusion of most Arab/West Asian multiple responses to the question on visible minority status, and requires caution in making cross-census comparison (Renaud and Costa 1999).

past twenty years. These socio-economic forces may affect various immigrant groups differently for various reasons.

Ethnic enclaves may have positive and/or negative economic effects for the ethnic minority group. In particular, the question of whether ethnic enclaves facilitate or impede the integration of immigrants into Canadian society has significant implications for immigrant settlement policies.

Using Census data from 1981, 1986, 1991 and 1996, this study first documents the emergence of highly concentrated visible minority neighbourhoods and their socio-economic conditions in Canada's three largest metropolitan areas. The focus is on the three largest visible minority groups in Toronto, Montreal, and Vancouver, most often the Chinese, South Asians (e.g., East Indian, Pakistani, Punjabi, Sri Lankan), and Blacks (e.g., African, Haitian, Jamaican, Somali). This study further examines the association between living in a visible minority neighbourhood and an immigrant's labour market outcomes.

2. *The Consequences of Living in Ethnic Enclaves – A Literature Review*

Ethnic enclaves, such as Toronto's Jewish neighbourhoods, "Little Italies" and "Chinatowns" in the first half of the 20th century represented a refuge where new immigrants could escape from the foreign environment. More importantly, within ethnic enclaves were located economic opportunities that some new immigrants had difficulties finding elsewhere (Murdie and Teixeira 2000). Thus, the economic and social significance of ethnic enclaves was apparent at a time when immigrants primarily consisted of manual labourers and the places of residence and places of work were closely located. However, much has changed in the economic structure and characteristics of immigrant populations. There has been no consensus in the literature regarding the association between living in ethnic neighbourhoods and immigrants' labour market performance in contemporary societies.

One line of reasoning argues that there is a diminishing role of neighbourhoods in people's daily lives, as contemporary society witnesses an ever-expanding spatial scale of social relations (Bolt, Burgers and van Kempen 1998). People now can function in different social networks that are not strongly limited by physical barriers and spatial obstacles. Social ties and economic opportunities are no longer attached or confined to the neighbourhood. Applying this line of reasoning would suggest that ethnic enclaves have a reduced influence on the social and economic integration of immigrants.

However, a large body of literature in the U.S., based mostly on the experience of Blacks, suggests that racial enclaves continue to exert strong negative impacts on their residents. Many Black ghettos in the U.S. are associated with limited economic opportunities, concentration of poverty, and substandard social and environmental conditions. Ghetto residents are often isolated from the outside world and develop attitudes and behaviours that are against the basic ideals and values of the mainstream society (Massey and Denton 1993). The existence of

racial/ethnic enclaves may also increase the visibility of racial group differences and intensify racial antagonism and preferences.

Contrary to the prevailing view in the U.S., which emphasizes the negative aspects of residential segregation, some Canadian studies have focused on the positive roles of neighbourhood segregation in sustaining cultural pluralism (Driedger 1978). More recent studies have explored residential concentration as bases for the establishment of ethnic business and entrepreneurships (Teixeira 2000; Lo et al. 2000).

Specific to the economic adjustment of immigrants, both positive and negative effects of living in ethnic/racial enclaves may originate from ethnic economies and ethnic networks. The ethnic economy—businesses primarily operating in ethnic neighbourhoods and relying on own-group members for their employees and clientele—can facilitate immigrants' settlement by providing easily accessible jobs. This may be particularly true for the newly-arrived and less well-educated. In a review of the literature on this topic, Galster, Metzger and Waite (1999) note that positive features might include the encouragement of: a) social capital formation; b) informal on-the-job training and business apprenticeship with ethnically based companies; c) higher productivity in these companies by clustering same-language workers; d) a denser network of job-sharing information, and e) acknowledgement and valuation by ethnic employers of foreign education credentials.

However, some potential negative effects may be associated with working within an ethnic economy (Galster, Metzger and Waite 1999). Employment in an ethnic economy is often associated with poor working conditions and low wages (Reitz 1990). Workers in the ethnic economy may be more likely to accept exploitive situations. Exclusive participation in the ethnic economy and closed within-group networks may also hamper immigrants' employment in the wider economy, thereby reducing incentives to acquire the host-country language(s), or to gain working experience and educational qualifications (Fong and Ooka 1999). Social isolation was shown to be particularly harmful for groups with low socio-economic status. Ooka and Wellman (2000) found that in Toronto, members of low-status ethnic groups tended to achieve higher income when they established ties outside of their own ethnic group.

Naturally, the impact of the ethnic economy and ethnic networks may vary among groups, depending on their group cohesion and the nature of the ethnic economy. For instance, in Toronto, the Chinese ethnic economy developed from a traditional Chinese economy that was primarily small scale, located in Chinese neighbourhoods, and focused on consumer goods and services, to one that is rapidly diversifying in size, location, and industrial structure. Chinese businesses in finance, real estate, insurance, and high technology are also emerging (Lo et al. 2000). In contrast to the Chinese population, which is relatively homogenous in their traditional culture and language, Blacks in Toronto are fragmented by language, country of origin, and religion. Blacks' neighbourhood concentration is lower than other major visible minority groups. Compared with other groups, Black businesses rely less on their community resources, are more dispersed and tend to be smaller in size (Teixeira 2000).

Along a different line, Borjas (1995) develops the notion of "ethnic capital" which refers to the average amount of human capital in the preceding generation of the ethnic group. According to this view, ethnic capital can influence the income levels of the children in the ethnic population, beyond the effects of the immediate families' human capital. That is, the characteristics of the ethnic group to which children belong can influence inter-generational income mobility. Belonging to a particular group can retard inter-generational improvements for relatively disadvantaged ethnic groups, as well as delay the deterioration of skills and economic outcomes (i.e. the regression towards the mean) for the more advantaged groups. Borjas finds that one of the mechanisms by which this process is promoted is through ethnic neighbourhoods or enclaves. He finds that residential segregation and the influence of ethnic capital on the process of inter-generational income mobility are intimately linked.

While there are many empirical studies on the general effects of living in racial/ethnic enclaves, only a few have empirically examined the relationship between residential segregation and immigrants' labour market outcomes, and most of them are U.S.-based studies. Galster, Metzger and Waite (1999) examined the effects of own-group concentration on immigrant's economic advancement in the 1980s. Using data from the 1980 and 1990 U.S. censuses and focusing on 14 immigrant groups in five metropolitan areas, they found that rising residential exposure to other members of one's immigrant group increased a group's poverty rate and decreased its employment rate. They interpreted this result to mean that the negative effects of ethnic economy might offset any other possible advantages. Furthermore, they found that a group's exposure to other neighbourhood characteristics, such non-employment, low education, and dependence on public assistance, was associated with lower educational, occupational, and employment achievements.

With a similar approach but using more sophisticated analytical methods (by controlling the fixed effects of year of immigration, national origin, and metropolitan area of residence), Borjas (2000) examined the association between residential concentration and assimilation for 90 immigrant groups in the U.S. He found that an immigrant group's rate of wage growth and improvement in educational attainment and English-language proficiency between 1980 and 1990 were negatively associated with the group's share in a metropolitan area's adult-age population.

Both studies measured ethnic enclaves or residential segregation at the metropolitan level and compared the economic assimilation of an immigrant group across metropolitan areas with various degrees of ethnic concentration. However, it is problematic to interpret the association between ethnic concentration at the metropolitan area level and immigrants' labour market performance. First, ethnic concentration does not necessarily lead to ethnic economy. As discussed above, the Chinese and Blacks have similar shares in Toronto's total population, yet ethnic economy is much stronger among the Chinese. Second, an observed negative association between ethnic concentration and labour market performance could result from the disadvantages of working in an ethnic economy (such as exploitive working conditions and isolation from the mainstream labour market) or simply reflect an equilibrium situation arising from geographic differences in the cost of ethnic goods. The cost of ethnic goods, such as ethnic foods, ethnic institutions and organizations that provide group-specific services, tends to be low in areas where

an ethnic group concentrates. An ethnic immigrant would move to a low concentration area only if higher earnings compensate for the higher cost of ethnic goods (Chiswick and Miller 2002).

Furthermore, the above two U.S. studies were unable to account for the impacts of differential exposure to own-group members within a metropolitan area where members of an immigrant group face similar conditions in the mainstream labour market, ethnic economy and cost of ethnic goods. However, they have different levels of exposure to residential segregation; some live in ethnic enclaves, others don't. The degree of exposure to own-group neighbours may reflect differences among immigrants in economic success, cultural assimilation, as well as preferences to live close to own-group members and discrimination that may reduce the likelihood of a visible minority group living close to other groups. On the other hand, immigrants' exposure to own-group neighbours may have impacts on their performance in the labour market.

Given the same observable individual characteristics that affect immigrants' economic success and cultural assimilation, do immigrants of a minority group who live in their enclaves have poorer or better labour market outcomes than those who have few own-group neighbours? Furthermore, is the association between exposure to own-group neighbours and labour market performance particularly strong among those who have more difficulties in adjusting to the Canadian labour market (such as recent arrivals, immigrants with low educational level, and immigrants who do not speak one of the official languages)? In this paper, we examine these questions for the three largest visible minority groups in Toronto, Montreal and Vancouver.

3. *Data and Methods*

3.1 Data and measures

This study uses micro-data from the 1981, 1986, 1991, and 1996 Canadian census 20% sample files. The analyses focus on the three largest visible minority groups in each of the three largest metropolitan areas in Canada, including the Chinese, South Asians, and Blacks in Toronto, Blacks, Arab/West Asians, and the Chinese in Montreal, and the Chinese, South Asians, and Filipinos in Vancouver.

The census tract is used in this paper as the basic unit of neighbourhood. Census tracts have carefully designed attributes, contain a wide range of demographic and socio-economic information, and allow for national and historical statistical comparisons. A few tracts with populations less than 500 are excluded from analyses in order to obtain a reliable estimate of neighbourhood ethnic compositions and economic conditions. In 1996, there were 802 census tracts with a population over 500 in Toronto, 749 in Montreal, and 297 in Vancouver. The population within census tracts ranged from 550 to 25,000 in Toronto (mean 5,200), 550 to 21,000 in Montreal (mean 4,320), and 700 to 196,200 in Vancouver (mean 6,010).

In the analysis, we examine the association between immigrants' residential segregation and their labour market performance. In particular, we ask whether the exposure to one's own ethnic group results in an employment effect, and for those employed, an earnings effect or occupational

segregation effect. Hence, we focus on three labour market outcomes for immigrants: the probability of being employed the degree of occupational segregation, and annual employment earnings (wages and salaries) levels. For the employment outcome, we examine whether exposure to own-group neighbours is associated with the probability of active participation in the labour market, independent of individual characteristics and neighbourhood economic conditions.

The study population includes immigrants who are between 25 and 64 years of age, not disabled and not attending school full-time. For those who are employed, we have a measure of occupation and hence examine whether exposure to own-group neighbours is associated with occupational segregation, i.e., the probability of working in an occupation in which the share of a group is at least twice as large as the group's share in the city's work force. A four-digit classification of occupations (approximately 500) is used to define occupational segregation. For those who are employed, we further ask whether exposure to own-group neighbours is associated with their level of annual earnings.

Our focal explanatory variable is residential exposure to own-group members. We create a composite "exposure" variable that consists of the exposure to own-group members in the individual's census tract, plus the exposure to own-group members in nearby neighbourhoods, weighted by the distance of the other neighbourhoods to the individual's neighbourhood. As distance increases, the value added to the exposure variable declines.

The composite exposure variable is created to deal with the potential effect of neighbourhood clustering. The effect on labour market outcomes may be quite different if one lives in an isolated neighbourhood, as opposed to one that is spatially adjacent to many other neighbourhoods with high concentrations of the same minority group. Being part of a very large minority community (many adjacent neighbourhoods) may result in a greater "treatment" effect than if one is in a single, isolated neighbourhood. The availability of ethnic businesses and networks that affect labour market outcomes could be quite different in the two cases.

More specifically, for neighbourhood i, the original exposure measure is p_i (% of population of the same group). The alternative composite exposure measure is

$$Px_i = (p_i + \Sigma\, c_{ij} * p_j)/(1+\Sigma c_{ij})$$

where j=1...n-1, n is the total number of neighbourhoods in the city. The distance function $c_{ij} = \exp(-d_{ij})$, d_{ij} is the distance in kilometers between neighbourhood i and j, p_i and p_j are the proportions of a visible minority group in neighbourhood i and j. The distance function assumes that the influence of surrounding areas diminishes rapidly with distance from the target neighbourhood i (Massey and Denton 1988).

To provide a sense of the values obtained for this composite variable, assume that an individual lives in a census tract with a minor presence of his/her own-group members (P_i= 5%). Assume further that there are two immediately adjacent tracts with a strong presence of the minority group (35% of the population are from this group), with the centres of the tracts being 2.0

kilometers apart. Assume that all other neighbourhoods with concentration of same minority group members are too distant to have any effect on the value of the variable. In this case, the original "exposure" index would be 5, and the value for the expanded composite measure would be 11.4. Thus, the individual's situation, originally described as living in a neighbourhood with a "minor" presence of own-group members, has moved to one that is now described as a "moderate" presence, using the classifications described in Table 2.

In multivariate analyses, we also include neighbourhood low-income rate as a control for neighbourhood economic conditions since neighbourhoods with a large presence of visible minority populations may also have poor economic conditions. Controlling for other neighbourhood contextual variables will help us to determine whether it is the exposure to own-group members or exposure to other neighbourhood conditions that is associated with labour market outcomes.

Many indicators of neighbourhood socio-economic conditions are available, such as unemployment rate, occupational structure, educational level, and family structure, but these aggregated variables are highly correlated with one another. The addition of these variables may result in a small gain in correcting model mis-specification but will result in serious problems of multi-collinearity (Pickett and Pearl 2000). In this study, we use low-income rate rather than other neighbourhood contextual conditions as the control variable because the low-income rate is more uniformly associated with the presence of visible minorities in the neighbourhoods across groups than other variables (see Table 3).

We also include individual level variables commonly used to predict labour market outcomes of immigrants, such as education, age as a proxy for experience, language, years since immigration, and family structure. Appendix A contains the definitions of outcome variables and individual-level and neighbourhood-level explanatory variables.

3.2 Methodological issues

The study addresses a number of technical issues. One important concern is the difficulty of making causal inferences with cross-sectional data. For instance, if exposure to own-group neighbours is observed to be associated with poor labour market outcomes, this may be the result of one of two possible causal paths (or both). It may be that those who are less successful economically are more likely to move to visible minority neighbourhoods, or, alternatively, living in visible minority neighbourhoods may exert a negative effect on labour market outcomes.

In the present study, we attempt to address this issue by placing some temporal ordering of the outcomes. More specifically, we restrict the sample to immigrants who lived in their "current" (at time of measurement of labour market outcomes) neighbourhood for one year or more. That is, we measure neighbourhood of residence in one year, and labour market outcomes the next (with the exception of employment earnings which cover the calendar year prior to the census, although only those who are currently employed are included in the analysis. Restriction to residents who had stayed in the same neighbourhood for at least five years yields similar results).

Statistically, current labour market outcomes will not affect past choices of neighbourhoods. Thus, we have reason to believe that in the model any observed association is more likely to be related to the effect of living in a minority enclave (or not) on labour market outcomes, simply because of the timing. However, we are not willing to make a definitive statement on the causal direction, because current labour market outcomes could be highly correlated with past outcomes, (although they could not "cause" past choices) which in turn could affect past choices of neighbourhoods. Hence, the issue of the direction of causality remains uncertain. Our first task is to determine if there is any association between exposure to own minority group and labour market outcomes.

A second technical issue confronted in this study is the possibility of non-linear associations between neighbourhood context and labour market outcomes, or a threshold effect of neighbourhood context (Buck 2001). We tested the possibility of non-linear effects by treating exposure to own-group neighbours as both a continuous (linear) and categorical (possibly non-linear) variable, and comparing the results. We found no particular threshold points and a larger effect when the variable was treated as continuous.

One issue that this study could not fully address is selection bias. People do not necessarily randomly choose neighbourhoods. Some unobserved variables, such as the motivation to assimilate, may affect both people's neighbourhood choices and their labour market outcomes. For example, immigrants with a strong motivation to assimilate may choose not to live in a visible minority neighbourhood, and achieve better labour market outcomes. In this case, the selection bias would lead to an over-estimate of the neighbourhood effect. In the absence of valid instrumental variables, randomized mobility experiments are an appropriate approach to avoid the selection issue (Oreopoulos 2002). However, such "natural" experiments are rare, and the data are often limited to particular population groups (e.g. low-income people).

The fourth technical issue addressed in the paper relates to the use of multi-level data. In our analyses, individuals' labour market outcomes are predicted by both individual level and neighbourhood level variables. There is a problem of independence (or lack of it) of observations within a neighbourhood; all people in the neighbourhood have the same value of the neighbourhood variable. To address this issue, we use hierarchical linear (random-coefficient regression) models (HLM) and the HLM5 software (Raudenbush et al. 2000). Basically, one can think of HLM as estimating two simultaneous equations, one at the individual level, and one at the neighbourhood level, as indicated below.

For each outcome (employment, working in segregated occupations and earnings), we estimate three different model specifications. The first model specification includes both an individual-level model and a neighbourhood-level model. In the individual-level model, all individual-level variables are included, and all the slopes are fixed across neighbourhoods (i.e. Bs associated with Xs in the individual level model take on the same value across all neighbourhoods), but the individual level model treats the intercept as random across neighbourhoods. That is, the effect of a change in X on the outcome variable is the same for all individuals in all neighbourhoods, but the level of the outcome is allowed to vary across neighbourhoods.

The neighbourhood-level model then predicts the variation in outcomes among neighbourhoods (as indicated by a varying intercept term) as a function of exposure to own-group members. The coefficient of interest is then γ_{01}, on the exposure variable (P_{xi}). The regressions in the first specification are described below.

Individual level: $Y_{ij} = \beta_{0j} + \beta_{1j}X_{1ij} + \ldots \beta_{nij}X_{nij} + r_{ij}$;
Neighbourhood level: $\beta_{0j} = \gamma_{00} + \gamma_{01}$ Exposure $+ \mu_{0j}$;

The second model specification is the same as that described above, but it simply adds neighbourhood low-income rate to the neighbourhood-level β_{0j} model. Now the neighbourhood level model becomes: $\beta_{0j} = \gamma_{00} + \gamma_{01}$ Exposure $+ \gamma_{02}$ LowIncomeRate $+ \mu_{0j}$. This is done to test whether the effect of exposure to own group members is mediated by neighbourhood economic conditions.

In the third model specification, we focus on three population groups of particular interest: recent immigrants (living in Canada less than 5 years), immigrants with less than high-school graduation, and immigrants with neither English nor French as their home language. These groups are viewed to be the most susceptible to poor labour market outcomes. Being part of a minority enclave may have stronger effects on their labour market outcomes, either positive or negative, than for other groups.

On the positive side, the enclave may be more important in providing employment and support to these immigrants than to others who can more readily adapt to labour markets associated with the majority population. On the negative side, the enclave may also serve to isolate these individuals more than others who have more experience in Canada, better mainstream language skills and higher levels of education.

To proceed with the third model, we first test whether among each of the three selected groups the slopes for the individual-level variables vary across neighbourhoods. If they do not, we keep them fixed in the model. If any of these three slopes is random (i.e. varies across neighbourhoods), we further test to determine whether the variation of the slope among neighbourhoods is associated with exposure to own-group neighbours and neighbourhood low-income rate. For instance, for the slope of recent immigrants, we would add an equation: $\beta_{1j} = \gamma_{10} + \gamma_{11}$ Exposure $+ \gamma_{12}$ LowIncomeRate $+ \mu_{1j}$ at the neighbourhood level. If no significant associations are found, the slope is fixed as in specifications 1 and 2 so that the model remains parsimonious.

The purpose of specification 3 is to examine whether exposure to own-group neighbours has different or more apparent effects on those who are least likely to succeed in the mainstream labour market. This approach is conceptually similar to introducing interaction terms in order to differentiate effects for the three most vulnerable groups from those of the rest of the population.

All the models are estimated for immigrant men and women separately. In most cases, the results for immigrant men and women are very similar. In the following section on regression analyses, we only present results for men, but discuss results for women when differences emerge between

men and women in the association between exposure to own-group neighbours and labour market outcomes.

4. Results

4.1 The Emergence of Chinese, Black and South Asian neighbourhoods in Canadian Cities

4.1.1 Increasing exposure to own-group members in the same neighbourhood

Among the three largest visible minority groups, in virtually all cities, there was a dramatic rise from 1981 to 1996 in the extent to which visible minority group members are being exposed to own-group neighbours in their neighbourhoods. In Toronto, on average[2], the percent of the population in neighbourhoods[3] that is Chinese rose from 9.6% in 1981 to 24.9% in 1996 (Table 1). In Vancouver, this proportion rose from 18.1 percent to 30.3%. Similar increases, although to lower levels, are observed for other major visible minority groups in Toronto and Vancouver. Montreal generally has the lowest level of "visible minority enclaves", as only among Blacks is there a significant proportion (10.1%) of the neighbourhood population who are Blacks. These smaller values in Montreal are likely a result of the smaller visible minority population in that city.

At any point in time, say 1996, immigrants who are new to Canada are more likely to live in a visible minority neighbourhood than are immigrants who have been in Canada for many years. Therefore, the effect of being in a visible minority enclave, whether positive or negative, is more of an issue among recent immigrants than among longer term immigrants or the Canadian-born (Table 1).

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[2] Only neighbourhoods that have at least one member of a particular ethnic group (e.g. Chinese) are included in the calculation of the mean. The average percentage of group X in neighbourhoods where group X members live is calculated as $P_x = \Sigma(x_i/X)(x_i/ t_i)$. It gives the probability for members of group X that the next person sampled from the same neighbourhood will be a X group member.

[3] That is, neighbourhoods with at least one Chinese.

Table 1: Average percentage of same group members in the neighbourhood for the three largest visible minority groups in Toronto, Montreal, and Vancouver, 1981 and 1996

			By length of stay in Canada					Gini index of group concentration in neighbourhoods
		Total	5 years or less	6 to 10 years	11 to 15 years	16 to 20 years	long-term & Canadian-born	
Toronto								
Chinese	1981	9.6%	10.6%	8.8%	8.8%	9.9%	3.0%	0.60
	1996	24.9%	29.0%	26.8%	22.8%	22.0%	6.8%	0.65
South Asian	1981	5.8%	6.3%	6.0%	5.0%	3.5%	1.2%	0.59
	1996	16.4%	18.2%	17.0%	17.1%	15.3%	6.1%	0.60
Black	1981	7.6%	8.2%	8.1%	7.3%	6.2%	1.4%	0.55
	1996	12.6%	15.1%	13.9%	12.8%	11.6%	6.6%	0.54
Montreal								
Black	1981	4.7%	5.1%	5.0%	4.2%	4.1%	1.0%	0.61
	1996	10.1%	11.5%	11.7%	11.5%	9.7%	5.2%	0.59
Arab/ West Asian	1981	6.4%	6.9%	5.8%	6.8%	7.6%	1.8%	0.71
	1996	9.0%	10.0%	9.2%	7.8%	8.2%	2.7%	0.68
Chinese	1981	3.0%	3.0%	3.0%	3.2%	3.0%	1.4%	0.75
	1996	6.2%	7.3%	7.0%	5.5%	5.7%	2.1%	0.66
Vancouver								
Chinese	1981	18.1%	20.3%	17.4%	17.6%	17.8%	6.6%	0.62
	1996	30.3%	29.8%	30.9%	32.9%	31.9%	11.1%	0.53
South Asian	1981	6.8%	7.5%	6.6%	6.7%	6.4%	2.2%	0.51
	1996	20.3%	24.4%	23.9%	21.2%	19.3%	9.1%	0.63
Filipino	1981	2.1%	2.3%	2.1%	1.9%	1.5%	0.5%	0.64
	1996	4.1%	4.5%	4.2%	4.3%	3.7%	1.5%	0.50

Data sources: the 1981 and 1996 Census 20% sample micro file

Visible minority immigrants, regardless of how long they have been in Canada, have increasingly through the 1980s and 1990s found themselves living in neighbourhoods with larger numbers of people from their own minority group. In particular, each wave of recent arrivals (those in Canada for five years or less) has found itself living in neighbourhoods that increasingly resemble visible minority enclaves[4]. Among the Chinese in Toronto, in 1981, on average recent arrivals lived in neighbourhoods where 10.6% of the population was Chinese; by 1996 this had increased to 29%, an almost three-fold increase. Other cases where recent arrivals tend to live in neighbourhoods with

[4] The only exception is Arabs/West Arabs in Montreal. This group had a decrease in average percent of population of same ethnic background living in the same neighbourhood between 1991 and 1996. This is mostly likely due to the problem of changes in defining Arab/West Asian group. See footnote 1 for details.

large own-group populations are the Chinese (29.8% in 1996) and South Asians in Vancouver (24.4%), and South Asians (18.2%) and Blacks (15.1%) in Toronto (Table 1).

Not only did recent immigrants increasingly find themselves in neighbourhoods populated by their own-group members at time of entry, but as number of years in Canada increased, so too did their tendency to be in own-group neighbourhoods (Figure 1). For instance, among the 1976-80 cohort of Chinese immigrants to Toronto, upon arrival an average 10% of the people in their neighbourhoods were Chinese. Among this same quasi-cohort after 16-20 years in Canada and residing in Toronto, 22% of the people in their neighbourhoods were Chinese.

The same general pattern is observed for all recent immigrant cohorts in all cities[5]. Increasing spatial assimilation of a visible minority group, in the sense of increasing probability to live side by side with majority group members, is unlikely to happen if large in-flows of new immigrants of the group continues to occur.

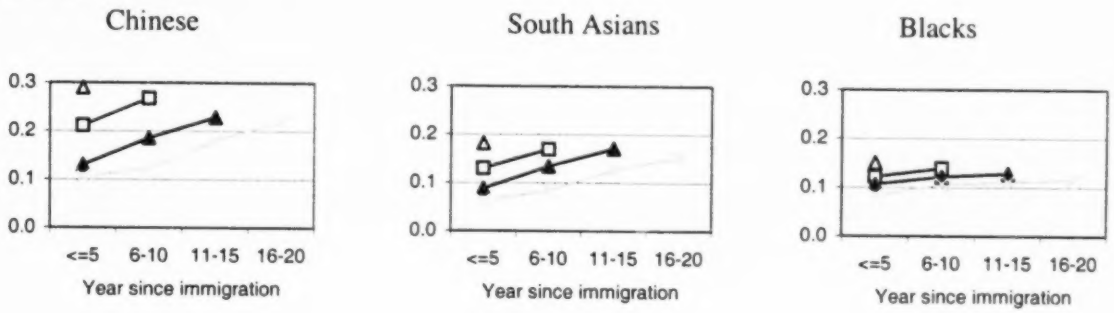
Note that overall this increase in the tendency towards "visible minority enclaves" is not due to a significant rise in the concentration of the Chinese (or other visible minority groups) in particular neighbourhoods. Rather, the large increase in visible minority enclaves is simply due to the fact that a larger share of the population of these cities is now from these minority groups; and the population of a particular minority group has been proportionately rising in most neighbourhoods.

As shown by the Gini index that reflects the tendency for a particular group to concentrate in a small number of neighbourhoods (Table 1, last column), visible minority groups are distributing themselves among neighbourhoods in much the same way in 1996 as they did in 1981. While the Gini is quite large in some cases, displaying substantial concentration, there has not been an overall increase. Of the nine visible minority group-city combinations, neighbourhood concentration fell in six cases, and rose in three.

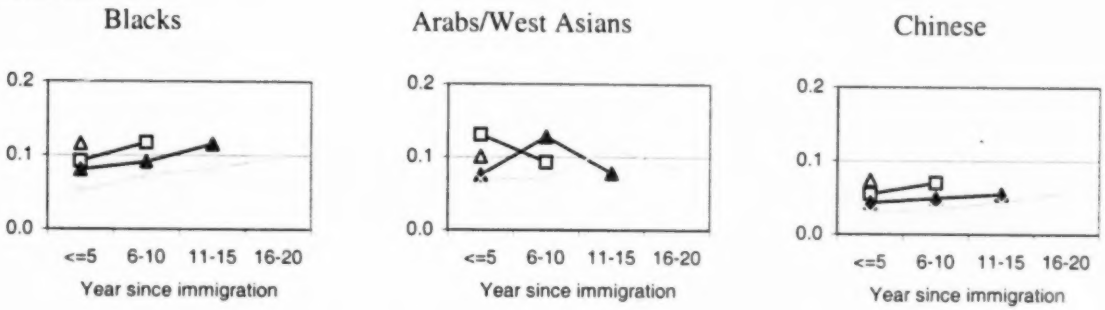
[5] Again, the Arab/west Arab group is an exception (see footnote 4).

Figure 1. Proportion of same visible minority group members in the neighbourhood by immigrant cohort and year since immigration

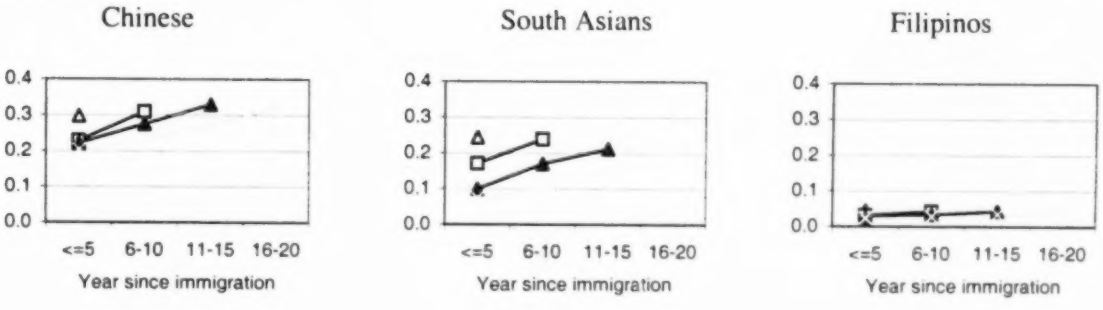
Toronto



Montreal



Vancouver



Immigrant cohorts: Δ 1991-95, □ 1986-90 , ▲ 1981-85 × 1976-80

4.1.2 A large increase in the number of visible minority neighbourhoods

In the three largest Canadian cities, the number of neighbourhoods (census tracts) with a strong presence of a visible minority group population increased dramatically since 1981. In Table 2, census tracts are classified according to the presence of a visible minority group in the neighbourhood: no presence, minor presence (up to 10% of the population in the neighbourhood is from the same visible minority group), moderate presence (10% to 30%), strong presence (30% to 50%), and dominant presence (over 50%).

In 1981, among the three largest visible minority groups in the three cities, there were only two neighbourhoods with a dominant ethnic presence: two Chinese neighbourhoods in Vancouver. By 1996, there were 24 such neighbourhoods, virtually all (except two) Chinese communities; 12 in Toronto, nine in Vancouver and one in Montreal. If one combines the "strong presence" and the "dominant presence" neighbourhoods (i.e. those where the minority group has more than a 30% share of the population), the number of such neighbourhoods increased from six in 1981 to 142 in 1996.

Three quarters of these visible minority enclaves were Chinese (103 out of 142), and they were primarily in Toronto and Vancouver. There were relatively few Black enclaves in Canadian cities: 10 in 1996. Montreal had relatively few visible minority enclaves (5 in 1996) compared to Toronto (73) and Vancouver (64).

The significance of the rise in visible minority neighbourhoods depends in part upon the extent to which a visible minority group locates in these neighbourhoods. Certainly not all of visible minority group members live in visible minority neighbourhoods.

Generally speaking, Blacks tend not to live in Black neighbourhoods (because there are fewer of them), while among the Chinese a significant proportion live in Chinese neighbourhoods. Continuing with the "more than 30%" definition of a minority neighbourhood, in Toronto, 7% of Blacks, 23% of South Asians, and 41% of Chinese lived in their respective minority neighbourhoods. In Vancouver, 52% of Chinese and 29% of South Asians lived in their minority neighbourhoods. Few minority group members in Montreal lived in such neighbourhood: 3% for Blacks, 7% for Arabs/West Asians, and 1% for the Chinese.

Table 2. Distribution of census tracts by the presence of the three largest visible minority group populations in Toronto, Montreal, and Vancouver, 1981 and 1996

	1981		1996		1981		1996		1981		1996	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Toronto		Chinese				South Asians				Blacks		
No presence	53	8.9	25	3.1	55	9.2	24	3.0	27	4.5	17	2.1
Minor presence	510	85.4	614	76.6	529	88.6	602	75.1	531	88.9	655	81.7
Moderate presence	31	5.2	117	14.6	13	2.2	156	19.5	39	6.5	123	15.3
Strong presence	3	0.5	34	4.2			20	2.5			7	0.9
Dominant presence			12	1.5								
Montreal		Blacks				Arab/West Asians				Chinese		
No presence	106	16.4	48	6.4	174	26.9	115	15.4	314	48.5	152	20.3
Minor presence	532	82.2	630	84.1	465	71.9	614	82.0	329	50.9	584	78.0
Moderate presence	9	1.4	68	9.1	8	1.2	19	2.5	4	0.6	12	1.6
Strong presence			2	0.3			1	0.1				
Dominant presence			1	0.1							1	0.1
Vancouver		Chinese				South Asians				Filipinos		
No presence	10	4.1	1	0.3	12	4.9	9	3.0	72	29.6	11	3.7
Minor presence	183	75.3	159	53.5	222	91.4	243	81.8	171	70.4	284	95.6
Moderate presence	47	19.3	81	27.3	9	3.7	37	12.5			2	0.7
Strong presence	1	0.4	47	15.8			7	2.4				
Dominant presence	2	0.8	9	3.0			1	0.3				

Data sources: the 1981 and 1996 census 20% sample micro file
Note: no presence - without any member of the visible monority group;
minor presence - with > 0 - 10% of the visible minority group population;
moderate presence - >10 -30%;
strong presence >30-50%;
dominant presence - over 50%.

Approximately one-half of Chinese recent immigrants (arrived in Canada within 10 years) lived in their minority enclaves in 1996 in Toronto and Vancouver, but only 2% in Montreal. Among South Asians the value ranged from 23% in Toronto and 39% in Vancouver. In contrast, Black recent immigrants were far less likely to be in their communities than were other groups; only 4% (Montreal) to 10% (Toronto) found themselves in such an environment.

In summary, there has been a dramatic increase in the number of visible minority neighbourhoods, particularly in Toronto and Vancouver. Forty to fifty percent of the Chinese population lived in such neighbourhoods, as did one quarter to one third of the South Asian population. Issues associated with residence in visible minority enclaves will become increasingly important, as the prevalence of such communities rises.

4.1.3 Socio-economic conditions in visible minority neighbourhoods

A growing body of literature in the U.S. and Europe has provided evidence of the negative consequences of living in deprived neighbourhoods on individuals' socio-economic mobility, health status, and criminal activity (Massey and Denton 1993; Pickett and Pearl 2000). There continues to be a debate regarding the extent of "neighbourhood effects" for economic outcomes (Oreopolis 2002), but for educational, criminal and health outcomes, effects of neighbourhood

socio-economic conditions appear to be real. Thus, the socio-economic conditions in minority neighbourhoods would impinge on the benefits or disadvantages for those who choose or have to live in these areas.

In this study, visible minority neighbourhoods tend to have higher unemployment rates and low-income rates than other census tracts. As the presence of a minority group increases, so too does the unemployment rate and low-income rate (Table 3).

For example, in Toronto, even though the proportion of the neighbourhood population with university degrees is quite constant across all neighbourhoods, as one moves from those with a minor presence of Chinese to those with a dominant presence, the unemployment rate rises from 8.9% to 11.2% (as of June 1996), and the low-income rate increases from 19.6% to 28.4%. Similar trends are observed among Chinese communities in Vancouver.

The Black neighbourhoods in Montreal display a particularly high low-income and unemployment rate in 1996; the one census tract with a "dominant" Black presence registers unemployment of 36%, and a low-income rate of 76%. It is also populated with less educated people and a much larger percentage of single parent families (56%) than in other tracts. The story for Black neighbourhoods is similar in Toronto, although it is less extreme.

There are, of course, many reasons for these results. The social and human capital of members of the minority communities may be substantially lower than average, as is the case for Blacks and South Asians in particular. Even among those visible minority immigrants with university degrees, the extent to which they can convert their education to economic resources may be inhibited by "credentialism". It is often difficult for Canadian employers to evaluate the degrees and other forms of higher education held by immigrants from developing countries, resulting in a decrease in the economic value of such education. And it is well known that economic outcomes for successive waves of immigrants to Canada have been declining through the 1980s and 1990s (Reitz 2001), and their low-income rate has been rising, often to very high levels (Picot and Hou 2002). Since recent immigrants tend to cluster in minority communities more than other immigrants, and their economic outcomes are inferior, this too will affect the socio-economic conditions in minority neighbourhoods.

Table 3. Socio-economic conditions of census tracts by the presence of visible minority groups in Toronto, Montreal, Vancouver, 1996

	% with university education	unemployed rate	low-income rate	% lone parent family	% with university education	unemployed rate	low-income rate	% lone parent family	% with university education	unemployed rate	low-income rate	% lone parent family
Toronto	Chinese				South Asian				Black			
No presence	12.1%	7.1%	13.2%	11.1%	22.1%	6.4%	13.7%	11.5%	20.7%	7.2%	12.5%	11.0%
Minor presence	19.1%	8.9%	19.6%	15.7%	20.9%	8.4%	19.1%	15.1%	20.8%	8.1%	17.9%	14.0%
Moderate presence	22.0%	9.9%	24.8%	16.9%	14.1%	11.8%	26.4%	18.2%	12.1%	13.9%	34.2%	24.3%
Strong presence	20.3%	10.2%	26.3%	15.5%	11.8%	13.1%	28.3%	17.6%	8.7%	18.3%	48.5%	33.7%
Dominant presence	21.2%	11.2%	28.4%	11.7%								
Montreal	Black				Arab/West Asian				Chinese			
No presence	13.7%	10.2%	19.9%	15.7%	11.0%	11.4%	23.7%	20.1%	11.7%	11.9%	22.8%	18.9%
Minor presence	17.1%	11.6%	23.7%	19.0%	16.9%	12.3%	24.8%	19.5%	17.3%	12.2%	25.0%	19.7%
Moderate presence	10.5%	18.4%	37.1%	25.4%	27.0%	14.2%	30.3%	13.9%	22.8%	15.1%	37.6%	15.8%
Strong presence	10.6%	19.0%	40.5%	31.6%	18.1%	21.8%	42.7%	19.5%				
Dominant presence	6.9%	35.8%	76.4%	56.2%					16.9%	13.2%	36.8%	15.1%
Vancouver	Chinese				South Asian				Filipino			
No presence	10.0%	7.9%	11.1%	9.3%	19.0%	8.0%	22.9%	14.0%	23.8%	5.2%	14.4%	10.4%
Minor presence	16.0%	7.7%	19.7%	13.5%	11.4%	10.6%	26.5%	14.6%	17.3%	8.5%	23.5%	14.1%
Moderate presence	21.4%	8.9%	26.1%	14.7%	8.8%	15.4%	29.6%	15.8%	16.3%	16.8%	47.5%	28.2%
Strong presence	16.8%	9.8%	29.0%	14.6%	10.2%	14.6%	29.1%	11.9%				
Dominant presence	16.3%	10.5%	34.7%	15.3%								

Data sources: the 1996 Census 20% sample micro file

However, beyond the direct effects such as individual immigrants' human capital and length of stay in Canada, does residential exposure to visible minority enclaves influence the labour market outcomes of the residents? Further, is the effect of living in minority enclaves independent of neighbourhood economic conditions? It is to these questions that we now turn.

4.2 The associations between living in minority enclaves and labour market outcomes

4.2.1 Employment

To summarize the rather detailed findings that follow, we note that for men, in general the association between exposure to own-group members and the probability of being employed is usually negative, but often weak and/or insignificant. The exception to the weak association is the instance of Blacks in Toronto, and Black recent immigrants in Montreal, where the negative association is both statistically significant and quite large. However, as noted earlier, among the major visible minority groups the exposure to own-group members is the smallest among Black immigrants.

Table 4 Results of hierarchical generalized linear models for immigrants' probability of being employed, men aged 25 to 64

	Chinese (n=12,348)						South Asians (n=11,759)						Blacks (n=7,166)					
Toronto	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
	B	se	B	se	B	se	B	se	B	se	B	se	B	se	B	se	B	se
Variation in Intercept B_0 (neighbourhood means)																		
Intercept γ_{00}	2.941	0.099 *	3.017	0.106 *	3.017	0.106 *	2.782	0.094 *	3.058	0.105 *	3.058	0.105 *	2.528	0.131 *	2.746	0.135 *	2.746	0.135 *
Exposure to own group members γ_{01}	-0.005	0.002 *	-0.005	0.002 *	-0.005	0.002 *	-0.006	0.004	-0.006	0.004	-0.006	0.004	-0.039	0.008 *	-0.022	0.008 *	-0.022	0.008 *
Neighbourhood low-income rate γ_{02}			-0.004	0.002 *	-0.004	0.002 *			-0.015	0.002 *	-0.015	0.002 *			-0.017	0.003 *	-0.017	0.003 *
Variation in Slope for recent immigrants					ns						ns						ns	
Variation in slope for non official language					ns						ns						ns	
Variation in slope for < highschool					ns						ns						ns	
Montreal	Blacks (n=2,828)						Arab/West Asians (n=2,788)						Chinese (n=1,581)					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
	B	se	B	se	B	se	B	se	B	se	B	se	B	se	B	se	B	se
Variation in Intercept B_0 (neighbourhood means)																		
Intercept γ_{00}	2.106	0.161 *	2.483	0.175 *	2.688	0.196 *	2.278	0.158 *	2.7448	0.185 *	2.74478	0.165 *	2.0341	0.248 *	2.125016	0.267 *	2.12502	0.267 *
Exposure to own group members γ_{01}	-0.028	0.014 *	-0.012	0.014	-0.040	0.019 *	0.003	0.016	0.014	0.012	0.014	0.012	-0.008	0.027	-0.007	0.027	-0.007	0.027
Neighbourhood low-income rate γ_{02}			-0.021	0.004 *	-0.023	0.005 *			-0.026	0.004 *	-0.026	0.004 *			-0.005	0.005	-0.005	0.005
Variation in Slope for recent immigrants											ns						ns	
Intercept					-0.143	0.383												
Exposure to own group members					-0.084	0.034 *												
Neighbourhood low-income rate					0.005	0.008												
Variation in slope for non official language											ns						ns	
Intercept					-0.853	0.298 *												
Exposure to own group members					0.057	0.027 *												
Neighbourhood low-income rate					0.010	0.007												
Variation in slope for < highschool											ns						ns	
Intercept					-0.831	0.318 *												
Exposure to own group members					0.077	0.027 *												
Neighbourhood low-income rate					-0.005	0.007												
Vancouver	Chinese (n=9,284)						South Asians (n=3,908)						Filipinos (n=1,089)					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
	B	se	B	se	B	se	B	se	B	se	B	se	B	se	B	se	B	se
Variation in Intercept B_0 (neighbourhood means)																		
Intercept γ_{00}	2.579	0.122 *	2.723	0.134 *	3.429	0.283 *	2.932	0.197 *	3.151	0.242 *	3.151	0.242 *	2.558	0.316 *	2.779	0.381 *	2.779	0.381 *
Exposure to own group members γ_{01}	0.001	0.003	0.004	0.003	-0.014	0.007	-0.009	0.003 *	-0.008	0.004 *	-0.008	0.004 *	-0.091	0.066	-0.049	0.077	-0.049	0.077
Neighbourhood low-income rate γ_{02}			-0.009	0.003 *	-0.018	0.010			-0.009	0.008	-0.009	0.008			-0.013	0.012	-0.013	0.012
Variation in Slope for recent immigrants					ns						ns						ns	
Variation in slope for non official language											ns						ns	
Intercept					-1.204	0.293 *												
Exposure to own group members					0.021	0.008 *												
Neighbourhood low-income rate					0.010	0.010												
Variation in slope for < highschool					ns						ns						ns	

Data source: the 1996 Census 20% sample micro-file
Note: all models included fixed effects for the following control variables: years since immigration, education, experience, family structure.
see Appendix A for the definitions of these variables.

Now the detail. Table 4 presents the results of hierarchical logistic regression models for immigrant men. To save space, the coefficients associated with the individual level variables in each model are not presented in the tables. The B coefficients in the tables are directly from the logistic model estimation, and as such cannot be interpreted in an intuitive manner. However, one can easily derive the probability of being employed for an individual with particular characteristics using $P= \exp (B_x)/(1+ \exp (B_x))$. For example, in the model for the Chinese in Toronto, a reference individual (arrived in Canada 20 years ago, uses English or French as home language, has a university degree, is the male adult in a two-adult family with kids, has the group mean in years of experience, and has zero percent of own-group members in his neighbourhood, see Appendix A), the probability of being employed = $e^{2.941}/(1+e^{2.941}) = 0.95$.

The significant γ_{01} in Model 1 for Chinese immigrants suggests that increased exposure to own-group members is significantly associated with reduced probability of being employed. However, the coefficient is very small, so the association is considered to be weak. For instance, the probability of being employed for the above mentioned reference person would only be reduced from 0.95 to 0.947 if he lives in a neighbourhood with 10% Chinese residents, rather than in one with no Chinese residents, and to 0.937 if he lives in a neighbourhood with 50% Chinese residents. For a recent arrival (<= 5 years) (b=-1.419) who uses Chinese as home language (b=-0.408) and has a less than high-school education (b=-0.379), the probability of being

employed would be reduced from 0.665 if he lives in a neighbourhood with 10% Chinese residents to 0.619 if he lives in a neighbourhood with 50% Chinese residents[6].

In Model 2 for the Chinese in Toronto, the addition of neighbourhood low-income rate does not mediate the effect of exposure to own group members, although the low-income rate is significantly associated with reduced probability of being employed. In Model 3, the variation in the slopes (Bs) among neighbourhoods is not statistically significant for the three most vulnerable groups where this test is conducted: recent immigrants, those with non-official home language, and the less educated. Thus, the effects of these individual level variables do not vary among neighbourhoods, and it is not necessary to test whether such possible variation in the slopes is associated with the "exposure" variable in the second level neighbourhood Model. The association between the variation in the intercept term (β_{0j}) and the exposure variable is identical in Model three to that observed in specifications 1 and 2.

In Toronto, exposure to own-group members is not significantly associated with the probability of being employed among South Asian immigrants, although the effect of neighbourhood low-income rate is significant.

By comparison, exposure to own-group members has a strong negative association with the probability of being employed among Black immigrants. Based on the coefficients in Model 1, the probability of being employed would fall from 0.895 if a Black male immigrant with the reference characteristics (who arrived in Canada 20 years ago, uses English or French as home language, has a university degree, is the male adult in a two-adult family with kids) lives in a neighbourhood with 10% Black residents to 0.795 if he lives in a neighbourhood with 30% Black residents. With the addition of the neighbourhood low-income rate, in Model 2, the coefficient associated with exposure to own group members is reduced by 40% but remains statistically significant and substantial. The negative effect of neighbourhood low-income rate is also significant.

In Montreal, exposure to own-group members also has a strong negative association with employment among Black immigrants (Model 1). However, this association becomes statistically insignificant when the neighbourhood low-income rate is controlled for (Model 2).

Moving to Model 3 for blacks, there are significant variations in the slopes (i.e. association between individual effects and employment) among neighbourhoods, so it is necessary to determine if this variation can be explained by differences in "exposure". Among these three populations, the significant coefficients in the bottom half of the table (i.e. 0.057 and 0.077) in Model 3 suggests that the employment disadvantage of exposure to own-group members is reduced for those speaking neither English or French as the home language, and the less educated, as compared to other groups. However, living near more own-group members increases the disadvantage of recent immigrants relative to long-term immigrants.

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[6] Probability for a Chinese immigrant living a neighbourhood with 10% Chinese is $(e^{2.941-1.420-0.408-0.379-10*0.005}/(1+e^{2.941-1.420-0.408-0.379-10*0.005})=0.665$. Probability for the individual living in a neighbourhood with 50% Chinese is $(e^{2.941-1.420-0.408-0.379-50*0.005}/(1+e^{2.941-1.420-0.408-0.379-50*0.005})=0.619$.

Thus, for the overall Black population, in Model 3 there is a significantly negative association between exposure and employment. Among recent immigrants, this negative effect is greatly enhanced (the coefficient is -0.040 + (-0.084) = -0.124). For the other two populations of interest, the effect is, if anything, small and positive. Exposure to own-group members is not significantly associated with the probability of being employed for Arab/West Asian and Chinese immigrants.

In Vancouver, exposure to own-group members is negatively associated with the probability of being employed for South Asian immigrants, but the effect is small. For Chinese and Filipino immigrants, the coefficient of exposure to own-group members is not significant.

Overall, the results are similar for immigrant women, but if anything, the negative associations between "exposure" and employment are even weaker, and in some specific cases, weakly positive. Of the nine visible minority group-city combinations, there is a negative and significant association in three cases among men and in two cases among women. In the following cases, the results are different for women. Among South Asians in Toronto and Arab/West Asians in Montreal, the association between exposure to own-group neighbours and the probability of being employed is positive and significant among immigrant women who speak neither official language. This association is also positive and significant among recent Chinese immigrant women in Toronto.

4.2.2 Occupational segregation

Previous studies have investigated ethnic concentration in labour markets and its implication for group inequality (Reitz 1990). Our concern here is whether living in minority neighbourhoods is associated with immigrants' concentration in labour markets either through ethnic networks or social isolation. To summarize the findings that follow, the association between exposure to own-group members and working in a segregated occupation among immigrant men is generally positive (except for the Chinese in Montreal), but is statistically significant in only four of the nine cases. However, the positive association is rather strong for South Asians in Toronto, Blacks in Montreal, and among Chinese in Vancouver who are less educated.

A segregated occupation is one in which a group's share of employment in the occupation, for the group of interest (say, the Chinese), is at least twice that of the group's share of the city workforce. A binary variable is created and defined as segregated occupations (1) and all others (0). The same econometric approach as described in the above employment section is used.

In Toronto, exposure to own-group members is positively associated with working in a highly segregated occupation for the three visible minority groups (Table 5). The association is particularly strong for South Asian immigrants. Based on Model 2 for South Asian immigrants, for a reference person as defined above, the probability of working in a segregated occupation increases from 0.048 if he lives in a neighbourhood with 10% same-group residents to 0.079 if the neighbourhood has 30% South Asian residents, assuming both neighbourhoods have a low-income rate of 15%.

In similar situations, the probability increases from 0.240 to 0.262 for Chinese immigrants. For Black immigrants, the association between exposure to own-group members and working in a segregated occupation becomes statistically insignificant once neighbourhood low-income rate is controlled for.

In Montreal, exposure to own-group members has a rather strong association with working in highly segregated occupations among Black immigrants. Based on Model 2 for Black immigrants, the probability of working in a segregated occupation for a reference person increases from 0.094 if he lives in a neighbourhood with 10% Black residents to 0.255 if the neighbourhood has 30% Black residents, assuming both neighbourhoods have a low-income rate of 15%. For Arab/West Asian and Chinese immigrants, exposure to own-group members is not significantly associated with working in a segregated occupation.

In Vancouver, exposure to own group members is strongly associated with working in a segregated occupation among South Asian immigrants even after controlling for neighbourhood low-income rate (Model 2). The probability of working in a segregated occupation for a reference immigrant increases from 0.091 if he lives in a neighbourhood with 10% South Asian residents to 0.191 in a neighbourhood with 30% South Asian residents, assuming both neighbourhoods have a low-income rate of 15%.

Table 5 Results of hierarchical generalized linear models for immigrants' probability of working a segregated occupation, men aged 25 to 64

Toronto

	Chinese (n=9,828)						South Asians (n=10,736)						Blacks (n=6,308)					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
	B	se	B	se	B	se	B	se	B	se	B	se	B	se	B	se	B	se
Variation in Intercept B_0 (neighbourhood means)																		
Intercept γ_{00}	-1.355	0.082 *	-1.500	0.093 *	-1.447	0.093 *	-3.373	0.102 *	-3.506	0.115 *	-3.506	0.115 *	-3.250	0.176 *	-3.397	0.179 *	-3.397	0.179 *
Exposure to own group members γ_{01}	0.007	0.002 *	0.006	0.002 *	0.004	0.002	0.028	0.005 *	0.027	0.005 *	0.027	0.005 *	0.025	0.009 *	0.010	0.008	0.010	0.008
Neighbourhood low-income rate γ_{02}			0.008	0.002 *	0.008	0.003 *			0.007	0.003 *	0.007	0.003 *			0.013	0.003 *	0.013	0.003 *
Variation in Slope for recent immigrants					ns						ns						ns	
Variation in slope for non official language					ns						ns						ns	
Variation in slope for < highschool											ns						ns	
intercept					-0.549	0.206 *												
Exposure to own group members					0.011	0.004 *												
Neighbourhood low-income rate					0.005	0.006												

Montreal

	Blacks (n=2,221)						Arab/West Asians (n=2,143)						Chinese (n=1,219)					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
	B	se	B	se	B	se	B	se	B	se	B	se	B	se	B	se	B	se
Variation in Intercept B_0 (neighbourhood means)																		
Intercept γ_{00}	-2.904	0.195 *	-2.941	0.203 *	-2.941	0.203 *	-0.807	0.142 *	-0.703	0.155 *	-0.703	0.155 *	-1.123	0.241 *	-1.331	0.249 *	-1.331	0.249 *
Exposure to own group members γ_{01}	0.063	0.012 *	0.061	0.013 *	0.061	0.013 *	0.006	0.018	0.011	0.018	0.011	0.018	-0.011	0.014	-0.004	0.014	-0.004	0.014
Neighbourhood low-income rate γ_{02}			0.002	0.003	0.002	0.003			-0.007	0.005	-0.007	0.005			0.011	0.004 *	0.011	0.004 *
Variation in Slope for recent immigrants					ns						ns						ns	
Variation in slope for non official language					ns						ns						ns	
Variation in slope for < highschool					ns						ns						ns	

Vancouver

	Chinese (n=7,055)						South Asians (n=3,535)						Filipinos (n=993)					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
	B	se	B	se	B	se	B	se	B	se	B	se	B	se	B	se	B	se
Variation in Intercept B_0 (neighbourhood means)																		
Intercept γ_{00}	-2.925	0.164 *	-3.3	0.189 *	-3.061	0.200 *	-2.645	0.148 *	-2.672	0.205 *	-2.832	0.234 *	-1.758	0.250 *	-1.893	0.294 *	-1.893	0.294 *
Exposure to own group members γ_{01}	0.007	0.004	0.001	0.004	-0.004	0.005	0.036	0.006 *	0.036	0.006 *	0.049	0.006 *	0.065	0.052	0.048	0.059	0.048	0.059
Neighbourhood low-income rate γ_{02}			0.021	0.005 *	0.016	0.006 *			0.001	0.006	0.000	0.008			0.007	0.010	0.007	0.010
Variation in Slope for recent immigrants					ns						ns						ns	
Variation in slope for non official language					ns						ns						ns	
Variation in slope for < highschool																	ns	
Intercept					0.065	0.301					1.693	0.326 *						
Exposure to own group members					0.017	0.007 *					-0.034	0.007 *						
Neighbourhood low-income rate					0.013	0.008					0.002	0.011						

Data source: the 1996 Census 20% sample micro-file
Note: all models included fixed effects for the following control variables: years since immigration, education, experience, family structure
see Appendix A for the definitions of these variables

For Chinese immigrants in Vancouver, only among those with less than high-school education is exposure to own-group members significantly associated with an increased probability of working in segregated occupations[7]. For Filipino immigrants, the association between exposure to own-group members and occupational segregation is not significant.

The results for immigrant women are very similar to those for immigrant men. The positive association is rather strong for South Asians in Toronto and Blacks in Montreal. The major difference from the pattern for immigrant men is that the association between exposure to own-group neighbours and occupational segregation among Chinese women is not significant in Toronto, but significant in Vancouver.

4.2.3 Employment earnings

A summary of the findings suggests that in the majority of cases (seven out of nine), there is no statistically significant association between exposure to own-group members and employment earnings among immigrant men. Negative associations are found among Blacks in Montreal and South Asians in Vancouver.

The dependent variable in these regression models is the log of annual earnings, and the same econometric approach as described above is employed.

In Toronto, a negative and fairly large association between exposure to own-group neighbours and earnings is observed in Model 1 for Blacks and South Asians (Table 6). However, once other possible neighbourhood effects are controlled for through the low-income rate (such as the exposure to a large low-income population that might affect motivation, for example, and hence labour market outcomes), the association becomes insignificant. Exposure to own-group members has no significant association with earnings among Chinese immigrant men.

In Montreal, exposure to own-group members is significantly associated with reduced earnings among Black immigrants even after controlling for neighbourhood low-income (Model 2). With similar characteristics, a Black immigrant living in a neighbourhood with 10% Blacks earns 40% more than one living in a neighbourhood with 30% Blacks [(-0.020*(10-30)]. Among Arab/West Asian immigrants, the main effect of exposure to own group members is not significant, but exposure to own-group members tends to increase the earnings difference between recent and long-term immigrants. Among the Chinese, exposure to own-group members is not significantly associated with employment earnings.

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[7] For instance, the probability of working in a segregated occupation for a recent Chinese immigrant (b=-0.078) who speaks Chinese at home (b=0.509) and with less than high school education would increase from 0.119 when his neighbourhood has 10% Chinese residents to 0.149 when the neighbourhood has 30% Chinese.

Table 6 Results of hierarchical linear models for immigrants' log earnings, working men aged 25 to 64

Toronto	Chinese (n=8,320)						South Asians (n=9,450)						Blacks (n=5,567)					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
	B	se	B	se	B	se	B	se	B	se	B	se	B	se	B	se	B	se
Variation in Intercept B_0 (neighbourhood means)																		
Intercept γ_{00}	10.140	0.019 *	10.302	0.028 *	10.302	0.028 *	10.130	0.022 *	10.279	0.031 *	10.276	0.032 *	10.104	0.031 *	10.209	0.037 *	10.209	0.037 *
Exposure to own group members γ_{01}	-0.001	0.001	0.000	0.001	0.000	0.001	-0.004	0.002 *	-0.003	0.002	-0.003	0.002	-0.011	0.003 *	-0.005	0.003	-0.005	0.003
Neighbourhood low-income rate γ_{02}			-0.007	0.001 *	-0.007	0.001 *			-0.006	0.001 *	-0.006	0.001 *			-0.006	0.001 *	-0.006	0.001 *
Variation in Slope for recent immigrants					ns						ns						ns	
Variation in slope for non official language					ns						ns						ns	
Variation in slope for < highschool					ns												ns	
Intercept											-0.485	0.071 *						
Exposure to own group members											0.009	0.003 *						
Neighbourhood low-income rate											0.000	0.002						

Montreal	Blacks (n=1,908)						Arab\West Asians (n=1,831)						Chinese (n=998)					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
	B	se	B	se	B	se	B	se	B	se	B	se	B	se	B	se	B	se
Variation in Intercept B_0 (neighbourhood means)																		
Intercept γ_{00}	9.984	0.047 *	10.107	0.060 *	10.107	0.060 *	9.955	0.043 *	10.033	0.060 *	10.031	0.061 *	9.813	0.073 *	9.778	0.107 *	9.778	0.107 *
Exposure to own group members γ_{01}	-0.025	0.007 *	-0.020	0.007 *	-0.020	0.007 *	-0.005	0.008	-0.001	0.008	0.000	0.008	-0.011	0.020	-0.005	0.020	-0.005	0.020
Neighbourhood low-income rate γ_{02}			-0.006	0.002 *	-0.006	0.002 *			-0.004	0.002 *	-0.005	0.002 *			-0.007	0.003 *	-0.007	0.003 *
Variation in Slope for recent immigrants					ns												ns	
Intercept											-0.352	0.151 *						
Exposure to own group members											-0.035	0.014 *						
Neighbourhood low-income rate											0.006	0.005						
Variation in slope for non official language					ns						ns						ns	
Variation in slope for < highschool					ns						ns						ns	

Vancouver	Chinese (n=5,779)						South Asians (n=3,037)						Filipinos (n=880)					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
	B	se	B	se	B	se	B	se	B	se	B	se	B	se	B	se	B	se
Variation in Intercept B_0 (neighbourhood means)																		
Intercept γ_{00}	10.03	0.032 *	10.105	0.044 *	10.083	0.045 *	10.130	0.035 *	10.290	0.069 *	10.290	0.069 *	10.117	0.074 *	10.158	0.095 *	10.158	0.095 *
Exposure to own group members γ_{01}	-0.002	0.001	0.000	0.001	0.000	0.001	-0.007	0.002 *	-0.006	0.002 *	-0.006	0.002 *	-0.035	0.022	-0.019	0.023	-0.019	0.023
Neighbourhood low-income rate γ_{02}			-0.004	0.002 *	-0.004	0.002 *			-0.007	0.002 *	-0.007	0.002 *			-0.003	0.004	-0.003	0.004
Variation in Slope for recent immigrants					ns						ns						ns	
Variation in slope for non official language					ns						ns						ns	
Variation in slope for < highschool											ns						ns	
Intercept					-0.514	0.108 *												
Exposure to own group members					0.009	0.003 *												
Neighbourhood low-income rate					0.000	0.003												

Data source: the 1996 Census 20% sample micro-file
Note: all models included fixed effects for the following control variables: years since immigration, education, experience, weeks worked in 1995, hours worked per week, occupation, family structure
see Appendix A for the definitions of these variables
* Significant at 0.05

In Vancouver, the main effect of "exposure" on earnings is insignificant for the Chinese and Filipinos; it is negative, significant and substantial for South Asians. The earnings difference is 12% between two persons with similar characteristics when one is in a neighbourhood that has 10% South Asians and the other 30% [as in Model 2, -0.006*(10-30)=0.12].

In almost all the cases, the results for immigrant women are similar to those for immigrant men. The only noticeable difference from the pattern for men is that the negative association between exposure to own-group neighbours and employment earnings is significant among Black women in Toronto even after controlling for neighbourhood low-income rate.

5. *Conclusion and Discussion*

The mass in-flows of visible minority immigrants since the early 1980s has made the ethnocultural mosaic in Canada's large cities more diverse and visible. Between 1981 and 1996, the number of visible minority enclaves, defined as census tracts with at least 30% of the population from the same visible minority group (Chinese, South Asian or Black) increased from six to 137 in Toronto and Vancouver. Three quarters of these enclaves were Chinese (102). Montreal only had five such enclaves in 1996, three of which were Black.

The rapid emergence of these visible minority enclaves is not due to visible minority immigrants becoming more concentrated in a small number of neighbourhoods. Rather, it is simply that a larger share of the population of these cities is now from these visible minority groups; the

proportion of the population from a particular visible minority group has been rising in most urban neighbourhoods. Consequently, visible minority immigrants, regardless of how long they have lived in Canada, have increasingly found themselves living in neighbourhoods with larger numbers of people from their own group.

In particular, among recent visible minority immigrants, neighbourhood "exposure" to own-group members at time of entry rose dramatically through the 1980s and 1990s. Furthermore, as years in Canada increased for these immigrants, so too did their neighbourhood exposure to own-group members. This trend is at odds with the predictions of the traditional spatial assimilation model. According to that model, as immigrants become adjusted culturally and economically in the receiving society, they would move away from ethnic enclaves to neighbourhoods with better socio-economic conditions and reside primarily with majority group members. However, given the increased presence of visible minority immigrants in most urban neighbourhoods, the likelihood of living with majority group members did not increase through time.

If the observed trend continues, the number of visible minority enclaves will further increase and new visible minority immigrants will have less potential contact with the white population in the same neighbourhood. Given this context, the possible effects of living in visible minority enclaves on the integration of immigrants into Canadian society becomes an increasingly important question. In terms of labour market outcomes, overall we found a quite weak effect of exposure to own-group neighbours. Generally speaking, the association between exposure and employment was negative, but often not significant. The association between exposure and working in a segregated occupation was positive, but also often not significant, and there appeared to be generally little association between exposure and employment earnings.

However, there were some important group differences. Among Chinese immigrants, who were the most segregated and most likely to live in visible minority enclaves, and hence for whom the effects could be most important, the associations between exposure to own-group members and labour market outcomes were usually very weak. In contrast, among Black immigrants, who were the least segregated and least likely to live in their enclaves, the associations between exposure to own-group neighbours and labour market outcomes were often negative and strong.

Given the cross-sectional nature of data and potential selection bias, one must treat these results with caution. However, most often the potential selection biases tend to over-estimate the neighbourhood effects. Hence, to the extent that there is a selection bias (unknown), the negative effects reported were likely over-estimated, if anything.

Although visible minority immigrants may not gain economically by living near their own-group members, they may benefit in many other ways. Even if they experience small potential negative economic effects, they may be willing to pay the small price and prefer neighbourhoods where they can live among people who share a common language and culture (Borjas 2000). In this sense, it is encouraging to find that exposure to own-group members was at the most only weakly associated with negative labour market outcomes, and in a few cases, living in minority enclaves tends to moderate the employment difficulties among immigrants who spoke neither official language or had low levels of education, particularly among immigrant women. These results

imply that in Canada's urban settings visible minority immigrants' residential segregation is not strongly related to their economic segregation and disadvantages.

Appendix A. Variables used in multivariate analyses

Variable Name	Categories or definitions
1. Labour market outcomes	
Employment	(1) Employed, (0) unemployed or not in the labour force. For population age 25 to 64 not disabled and not attending full-time school
Occupation segregation	(1) Working in an occupation in which the share of the group is twice as large as the group's share in the city's work force, (0) others. For employed people aged 25 to 64
Log wages	Log wages and salaries for population aged 25 to 64 with positive wages and salaries in the year prior to the census date
2. Individual level variables	
Year since immigration	<= 5 years 6-10 years 11-15 years 16-20 years > 20 years (reference)
Home language	Non official language English or French (reference)
Education	Less than high school High school Some post-secondary With university degree (reference)
Experience	(Age- years of schooling - 6) - group mean
Experience squared	Experience squared
Family Structure	Unattached individual Lone parent family Two adults without kids Two adults with kids (reference)
Occupation*	Managerial Business services Professional Arts, cultural, recreation, and sports Sales and services Trades, transportation and equipment Processing, manufacturing, utilities (reference)
Weeks worked*	Weeks worked in 1995
Hours worked*	Hours worked in reference week
3. Neighbourhood level variables	
Within group exposure	Weighted percent of population that is of same ethnic group in neighbourhoods, see text for details
Neighbourhood low-income	Percent of low-income population

Note: * variables on occupation, weeks worked and hours worked are used only in models for earnings.

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